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NEB-236-PUS.ST25.txt
SEQUENCE LISTING

<110> New England Biolabs, Inc.
Guan, Chudi
Kumar, Sanjay
Kucera, Rebecca

<120> Modified DNA Cleavage Enzymes and Methods of Use (as amended by
ISA)

<130> NEB-236-PUS

<150> 60/524,123
<151> 2003-11-21

<150> PCT/US04/039288
<151> 2004-11-22

<160> 25

<170> PatentIn version 3.2

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gtgccttatg taattccggc gagcaatcac acttacactc cagacttctt acttccaaac 180
ggtatattcg ttgagacaaa gggctctgtgg gaaagcgatg atagaaagaa gcacttatta 240
attagggagc agcaccgccga gctagacatc cgtattgtct tctcaagctc acgtactaag 300
ttatacaaag gttctccaac gtcttatgga gagttctgcg aaaagcatgg tattaagttc 360
gctgataaac tgatacctgc tgagtggata aaggaacca agaaggaggt cccctttgat 420
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36

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NEB-236-PUS.ST25.txt

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Ser Gly Leu Glu Asp Lys Val Ser Lys Gln Leu Glu Ser Lys Gly Ile
20 25 30

Lys Phe Glu Tyr Glu Glu Trp Lys Val Pro Tyr Val Ile Pro Ala Ser
35 40 45

Asn His Thr Tyr Thr Pro Asp Phe Leu Leu Pro Asn Gly Ile Phe Val
50 55 60

Glu Thr Lys Gly Leu Trp Glu Ser Asp Asp Arg Lys Lys His Leu Leu
65 70 75 80

Ile Arg Glu Gln His Pro Glu Leu Asp Ile Arg Ile Val Phe Ser Ser
85 90 95

Ser Arg Thr Lys Leu Tyr Lys Gly Ser Pro Thr Ser Tyr Gly Glu Phe
100 105 110

Cys Glu Lys His Gly Ile Lys Phe Ala Asp Lys Leu Ile Pro Ala Glu
115 120 125

Trp Ile Lys Glu Pro Lys Lys Glu Val Pro Phe Asp Arg Leu Lys Arg
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Lys Gly Gly Lys Lys
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Arg Ser Gly Leu Glu Asp Lys Val Ser Lys Gln Leu Glu Gly Lys Gly
20 25 30

Ile Lys Phe Asp Tyr Glu Leu Trp Lys Ile Pro Tyr Val Val Pro Ala
35 40 45

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Ser Asn His Val Tyr Thr Pro Asp Phe Leu Leu Pro Asn Gly Ile Phe
50 55 60

Ile Glu Thr Lys Gly Leu Trp Glu Ser Asp Asp Arg Lys Lys His Leu
65 70 75 80

Leu Ile Arg Glu Gln Phe Pro Glu Leu Asp Ile Arg Leu Val Phe Ser
85 90 95

Ser Ser Arg Thr Lys Leu Tyr Lys Gly Ser Pro Thr Ser Tyr Gly Glu
100 105 110

Trp Cys Glu Lys His Gly Ile Leu Phe Ala Asp Lys Leu Ile Pro Val
115 120 125

Glu Trp Leu Lys Glu Pro Lys Lys Glu Val Pro Phe Asp Arg Leu Lys
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Gln Ala Lys Gly Gly Lys Lys
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20 25 30

Ile Lys Phe Asp Tyr Glu Leu Trp Arg Ile Pro Tyr Val Ile Pro Ala
35 40 45

Ser Asp His Leu Tyr Thr Pro Asp Phe Leu Leu Pro Asn Gly Ile Phe
50 55 60

Ile Glu Thr Lys Gly Leu Trp Asp Ser Asp Asp Arg Lys Lys His Leu
65 70 75 80

Leu Ile Arg Glu Gln His Pro Glu Leu Asp Ile Arg Leu Val Phe Ser
85 90 95

Ser Ser Arg Ser Lys Leu Tyr Lys Gly Ser Pro Thr Ser Tyr Ala Glu
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100

105

110

Trp Cys Glu Lys His Gly Ile Leu Phe Ala Asp Lys Leu Ile Pro Val
 115 120 125

Glu Trp Leu Lys Glu Pro Lys Lys Glu Val Pro Phe Asp Lys Phe Lys
 130 135 140

Thr Lys Lys Gly Val Lys Lys Asn Gly
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<213> Bacteriophage T3

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Lys Phe Asp Tyr Glu Leu Trp Arg Ile Pro Tyr Val Ile Pro Glu Ser
 35 40 45

Asp His Leu Tyr Thr Pro Asp Phe Leu Leu Pro Asn Gly Ile Phe Ile
 50 55 60

Glu Thr Lys Gly Leu Trp Asp Ser Asp Asp Arg Lys Lys His Leu Leu
 65 70 75 80

Ile Arg Glu Gln His Pro Glu Leu Asp Ile Arg Leu Val Phe Ser Ser
 85 90 95

Ser Arg Ser Lys Leu Tyr Lys Gly Ser Pro Thr Ser Tyr Gly Glu Trp
 100 105 110

Cys Glu Lys His Gly Ile Leu Phe Ala Asp Lys Leu Ile Pro Val Ala
 115 120 125

Gly Val Lys Glu Pro Lys Lys Glu Val Pro Phe Asp Lys Phe Lys Thr
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Lys Lys Gly Val Lys Lys Asn Gly
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NEB-236-PUS.ST25.txt

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20 25 30

Tyr Asp Phe Glu Arg Phe His Ile Asn Tyr Val Val Pro Ala Arg Asp
35 40 45

Ala Lys Tyr Thr Pro Asp Phe Val Leu Ala Asn Gly Ile Ile Ile Glu
50 55 60

Thr Lys Gly Ile Trp Glu Val Asp Asp Arg Lys Lys His Leu Leu Ile
65 70 75 80

Arg Glu Gln Tyr Pro Asp Leu Asp Ile Arg Leu Val Phe Ser Asn Ser
85 90 95

Asn Ser Lys Ile Tyr Lys Gly Ser Pro Thr Ser Tyr Ala Asp Phe Cys
100 105 110

Thr Lys His Gly Ile Gln Phe Ala Asp Lys Leu Val Pro Arg Asp Trp
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Leu Lys Glu Ala Arg Lys Glu Ile Pro Gln Gly Val Leu Val Pro Lys
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Lys Gly Gly
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Asp Gln Leu Thr Ala Val Gly Met Gly Phe Thr Phe Glu Ser Leu Val
 20 25 30

Val Pro Tyr Thr Arg Pro Ala Lys Val His Lys Tyr Thr Pro Asp Phe
 35 40 45

Ala Leu Ala Asn Gly Ile Ile Val Glu Thr Lys Gly Arg Phe Leu Thr
 50 55 60

Glu Asp Arg Gln Lys Gln Leu Leu Val Lys Ala Gln His Pro Glu Leu
 65 70 75 80

Asp Val Arg Phe Val Phe Ser Asn Ser Lys Thr Lys Ile Asn Lys Arg
 85 90 95

Ser Thr Thr Thr Tyr Ala Asp Trp Cys Ser Lys Asn Gly Phe Gln Tyr
 100 105 110

Ala Asp Lys Leu Val Pro His Ala Trp Leu Asn Glu Pro Val Asn Glu
 115 120 125

Ala Ser Leu Ser Ile Ile Lys Gly Leu Ser Lys Glu Lys
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Tyr Arg Ser Gly Leu Glu Glu Gln Thr Ala Lys Asp Leu Lys Lys Arg
 20 25 30

Lys Val Leu Phe Thr Tyr Glu Glu Thr Lys Ile Lys Trp Leu Asp Ser
 35 40 45

Lys Val Arg Thr Tyr Thr Pro Asp Phe Val Leu Pro Asn Gly Val Ile
 50 55 60

Ile Glu Thr Lys Gly Arg Phe Val Ala Ala Asp Arg Arg Lys His Leu
 65 70 75 80

Glu Ile Gln Lys Gln Phe Gly Thr Leu Tyr Asp Ile Arg Phe Val Phe
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Thr Asn Ser Lys Ala Lys Leu Tyr Lys Gly Ala Lys Ser Ser Tyr Ala
100 105 110

Asp Trp Cys Asn Lys His Gly Phe Leu Tyr Ala Asp Lys Thr Ile Pro
115 120 125

Glu Asp Trp Leu Asn Glu
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 Ser Gly Leu Glu Asp Lys Val Ser Lys Gln Leu Glu Ser Lys Gly Ile
 20 25 30
 Lys Phe Glu Tyr Glu Glu Trp Lys Val Pro Tyr Val Ile Pro Ala Ser
 35 40 45
 Asn His Thr Tyr Thr Pro Asp Phe Leu Leu Pro Asn Gly Ile Phe Val
 50 55 60
 Glu Thr Lys Gly Leu Trp Glu Ser Asp Asp Arg Lys Lys His Leu Leu
 65 70 75 80
 Ile Arg Lys Gln His Pro Glu Leu Asp Ile Arg Ile Val Phe Ser Ser
 85 90 95
 Ser Arg Thr Lys Leu Tyr Lys Gly Ser Pro Thr Ser Tyr Gly Glu Phe
 100 105 110
 Cys Glu Lys His Gly Ile Lys Phe Ala Asp Lys Leu Ile Pro Ala Glu
 115 120 125
 Trp Ile Lys Glu Pro Lys Lys Glu Val Pro Phe Asp Arg Leu Lys Arg
 130 135 140
 Lys Gly Gly Lys Lys
 145

<210> 25
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Met Val Gly Tyr Gly Val Lys Gly Ile Arg Lys Val Gly Ala Phe Arg
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 Ser Gly Leu Glu Asp Lys Val Ser Lys Gln Leu Glu Ser Lys Gly Ile
 20 25 30
 Lys Phe Glu Tyr Glu Glu Trp Lys Val Pro Tyr Val Ile Pro Ala Ser
 35 40 45
 Asn His Thr Tyr Thr Pro Asp Phe Leu Leu Pro Asn Gly Ile Phe Val
 50 55 60

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Glu Thr Lys Gly Leu Trp Glu Ser Asp Asp Arg Lys Lys His Leu Leu
65 70 75 80

Ile Arg Glu Gln His Pro Glu Leu Asp Ile Arg Ile Val Phe Ser Ser
85 90 95

Ser Arg Thr Lys Leu Tyr Lys Gly Ser Pro Thr Ser Tyr Gly Glu Phe
100 105 110

Cys Glu Lys His Gly Ile Lys Phe Ala Asp Lys Leu Ile Pro Ala Glu
115 120 125

Trp Ile Lys Glu Pro Lys Lys Glu Val Ser Phe Asp Arg Leu Lys Arg
130 135 140

Lys Gly Gly Lys Lys
145